

LNG Review July 2023
- Recent issues and events -
Hiroshi Hashimoto*

Introduction

In the first half of 2023, the global ocean transported LNG volumes exceeded 200 million tonnes (up 2% year-on-year). Top LNG exporters were the United States, Australia, and Qatar, as in the same period of 2022, with the respective volumes from the three countries were close to each other. Except for Russia's significant decline of 9% year-on-year, relatively noticeable declines in Nigeria, Egypt and Equatorial Guinea, and the recovery of Norwegian exports from the same period of 2022, which was affected by an extended suspension of LNG production, the first half of 2023 saw relatively modest changes in exported volumes from other LNG exporting countries.

China's LNG import amounted to 33.44 million tonnes in the first half of 2023, a 7.2% increase year-on-year, but still well below 39.62 million tonnes in the same period in 2021. Japan imported 4.53 million tonnes of LNG in June 2023, making its half-a-year total 32.62 million tonnes, a 13.1% decrease year-on-year and making the country the second largest after China.

In July 2023, the first FID on a large-scale LNG production project was announced for the latter half of the calendar year, adding planned LNG production capacity of 17.6 million tonnes per year. Regarding the Rio Grande LNG project, after TotalEnergies' offtake commitment of 5.4 million tonnes per year, as well as a 16.7% direct stake in the project and a 17.5% stake in NextDecade in late June, NextDecade secured project finance commitments from leading lenders in Asia, Europe, the Middle East and North America.

In July, the LNG Producer-Consumer Conference was co-hosted by the Japan Ministry of Economy, Trade and Industry (METI) and the International Energy Agency (IEA) in Tokyo. The LNG 2023, a large-scale international industry conference, was held in Vancouver, Canada. At the LNGPCC, the importance of ensuring LNG security, the potential enhanced role of the IEA in this regard, and the importance of greenhouse gas management were pointed out. At the LNG 2023 event, the importance of the role of LNG in the future and progress toward Canada's clean LNG supply were stated.

* The writer belongs to the Energy Security Unit.

[Asia Pacific]

Tokyo Gas announced on 21 July 2023 that the company had made an investment decision on the LNG-fired thermal power station in Sodegaura, Chiba. The company plans to introduce a cutting-edge 1.95 GW high-efficiency, gas turbine combined cycle power generator capable of hydrogen co-firing, and plans to launch operations successively starting from FY2029.

JERA and Korea Gas Corporation (Kogas) launched an initiative of the "Coalition for LNG Emission Abatement toward Net-zero ("CLEAN")" on 18 July 2023. CLEAN is an initiative taken by LNG buyers, together with LNG producers, to reduce methane emissions in the LNG value chain. With the support of the governments of Japan, the United States and Republic of Korea, and the Japan Organization for Metals and Energy Security ("JOGMEC"), the two companies say they will work to increase the visibility of methane emissions through dialogue with LNG producers, and to develop and disseminate best practices to reduce methane emissions.

Nippon Export and Investment Insurance (NEXI) announced on 19 July 2023 that NEXI had decided to provide a loan insurance for a loan arranged by Sumitomo Mitsui Banking Corporation to JERA Trading International Pte. Ltd. (JERATI), a Singaporean subsidiary of JERA Co., Inc. NEXI's insurance will cover the Revolving Credit Facility extended to JERATI, which is to be used for the working capital of JERA Global Markets Pte. Ltd. (JERAGM) in which JERATI invests. JERAGM has been contributing to procuring LNG for its parent company JERA through its trading business of natural resources.

Viet Nam's PetroVietnam Gas (PV Gas) announced on 5 July 2023 that the company had separate meetings with Russia's Novatek and ExxonMobil to explore business opportunities in the LNG sector. PV GAS said the company plans to receive the first LNG cargo at Thị Vải LNG Terminal on 10 July 2023.

PV Gas announced on 10 July 2023 that its Thị Vải LNG import terminal had received the first cargo from Shell. Shell supplied the cargo on the Maran Gas Achilles, owned by a joint venture of Greece's Maran Gas and Qatar's Nakilat, sourced from Indonesia's Bontang LNG plant, PV Gas said.

AES Vietnam announced on 12 July 2023 that Son Mỹ LNG Terminal Project Company, a joint venture of AES and PV Gas, was granted the Investment Policy Approval for its Son Mỹ LNG Terminal project by Bình Thuận People's Committee on 11 July. The terminal project will be located in Bình Thuận Province, in the South-Central region of Vietnam. The terminal will have an installed capacity of 450 TBtu (8.72 million tonnes) and is expected to begin commercial operations in 2027. AES' 2.2 GW Son Mỹ 2 combined cycle gas turbine (CCGT) received Investment Policy Approval earlier in 2023.

Philippine's First Gen Corporation announced on 7 July 2023 that the company had decided to award the tender to procure a single cargo of LNG to Shell Eastern Trading (Pte) Ltd., for delivery between August and September 2023.

First Gen Corporation (FGen) announced 11 July 2023 that FGen and Prime Infrastructure Capital Inc. (Prime Infra) were developing a gas aggregation framework to ensure a steady, lower and more stable gas prices. The framework will make it possible to blend extracted volumes of indigenous Malampaya gas with imported LNG.

Shell China announced on 28 July 2023 that the company and China Oil and Gas Pipeline Network (PipeChina) signed the medium- and long-term LNG terminal use agreement on 20 July. Shell said that it had become the first international energy firm to sign such agreement with PipeChina.

Pakistan LNG published on 14 July 2023 an evaluation report of the latest LNG purchase tender. Trafigura was the only company to submit offers for a delivery on 3 - 4 January 2024 at a price of USD 23.4711/MBtu and 23 - 24 February 2024 at USD 22.4722. There were no offers for the delivery on 28 - 29 January 2024.

Pakistan LNG announced on 25 July 2023 that the company had signed an LNG supply agreement with SOCAR (State Oil Company of Azerbaijan Republic) for one cargo per month for one year, with an option to extend the agreement for one year.

Australia's Woodside said on 19 July 2023 in its second quarter 2023 report that its Scarborough development was 38% complete at the end of June, with manufacturing of the export trunkline complete and Pluto Train 2 module fabrication ramping up.

Australia's Santo said in its second quarter 2023 report on 20 July 2023, that the Barossa project was 66% complete, excluding Darwin Pipeline Duplication project. Drilling activities remain suspended pending assessment and acceptance of the environment plan by the regulator NOPSEMA. Potential for drilling activities to recommence before the end of the year should enable the project to remain on schedule for first production in 2025.

ENI announced on 25 July 2023 the acquisition of Chevron interests, including Operatorship, in the Indonesian Blocks named Ganal PSC (Chevron 62%), Rapak PSC (Chevron 62%) and Makassar Straits PSC (Chevron 72%), in the Kutei Basin, offshore East Kalimantan. Eni already has a 20% interest in the Ganal and Rapak Blocks. ENI said the acquisition is expected to fast track the development of the Gendalo and Gandang gas project, a part of the Indonesia Deepwater Development (IDD) in the Ganal PSC.

Petronas, Pertamina and Shell announced on 25 July 2023 that Petronas Masela, and PT Pertamina Hulu Energi had agreed to acquire a 35% stake in the Masela production sharing contract (PSC) offshore Indonesia from Shell Upstream Overseas Services. Pertamina will acquire a 20% stake while Petronas will buy a 15% interest in the Masela PSC,

which includes the Abadi gas project. Due for completion in Q3 2023, the transaction is subject to regulatory approval from Indonesia's Ministry of Energy and Mineral Resources. Inpex operates the Block with a 65% stake.

[North America]

Berkshire Hathaway Energy announced on 10 July 2023 that it had executed an agreement to purchase Dominion Energy's 50% limited partnership stake in the Cove Point LNG, LP business. The purchased interest will be held within BHE GT&S, LLC, a Berkshire Hathaway Energy business unit. A subsidiary of BHE GT&S is also the current general partner and operator of the Cove Point natural gas pipeline and its LNG terminal located in Lusby, Maryland. Berkshire Hathaway Energy will own a 75% limited partnership stake in Cove Point LNG, LP. A subsidiary of Brookfield Infrastructure Partners holds the remaining 25%.

Baker Hughes announced on 6 July 2023 that it had been awarded an order by Bechtel Energy Inc. to supply three Main Refrigerant Compressors (MRCs) for NextDecade's Rio Grande LNG project in Texas. Baker Hughes will supply six Frame 7 gas turbines paired with 18 centrifugal compressors across Rio Grande's first three LNG trains in a parallel configuration arrangement for a nameplate capacity of 17.61 million tonnes per year.

NextDecade Corporation announced on 12 July 2023 that the company had made a final investment decision (FID) to construct the first three liquefaction trains (Phase 1) at the company's 27 million tonne per year Rio Grande LNG (RGLNG) export facility in Brownsville, Texas. The company executed a joint venture agreement for Phase 1 with Global Infrastructure Partners (GIP), GIC, Mubadala Investment Company, (collectively, the Financial Investors), and TotalEnergies. RGLNG issued the notice to proceed (NTP) to Bechtel Energy Inc. to begin construction of Phase 1 under its lump-sum turnkey engineering, procurement, and construction contracts (EPC). Phase 1, with nameplate liquefaction capacity of 17.6 million tonnes per year, has 16.2 million tonnes per year of long-term binding LNG sale and purchase agreements (SPAs) with TotalEnergies, Shell NA LNG LLC, ENN LNG Pte Ltd, Engie S.A., ExxonMobil LNG Asia Pacific, Guangdong Energy Group, China Gas Hongda Energy Trading Co., Galp Trading S.A. and Itochu Corporation. Financial Investors and TTE each have options to invest in RGLNG Train 4 and Train 5 equity, and options to invest in the planned carbon capture and sequestration project at RGLNG. TTE's right to invest in Train 4 and Train 5 is conditioned on exercising their LNG purchase rights of 1.5 million tonnes per year in each of Train 4 and Train 5.

Great Lakes Dredge & Dock Corporation announced on 24 July 2023 the receipt of Notice to Proceed to perform essential improvements to the Brownsville Ship Channel for

NextDecade Corporation's Rio Grande LNG (RGLNG) project.

Italy's Edison said on 26 July 2023 that the company's performance in the first half of 2023 was affected by a strong negative impact deriving from the delay in the LNG deliveries from the United States, which led Edison to start an arbitration dispute.

Venture Global LNG announced on 28 July 2023 that the Federal Energy Regulatory Commission (FERC) had issued a positive final environmental impact statement (FEIS) for Venture Global's third project, CP2 LNG. The company says, to date, 9.25 million tonnes of the 20 million tonnes per year nameplate capacity for CP2 has been sold under 20-year sales and purchase agreements. Over half of the contracted capacity has been committed to German and Japanese customers. CP2 LNG customers, include ExxonMobil, Chevron, JERA, New Fortress Energy, INPEX, China Gas, EnBW and SEFE.

Energy Transfer LP announced on 12 July 2023 that the company had entered into three non-binding Heads of Agreement (HOAs) related to long-term LNG offtake from its Lake Charles LNG project for an aggregate of 3.6 million tonnes per year. One of the HOAs specifies that a Japanese consortium would purchase 1.6 million tonnes per year for a 20-year term, subject to an option to convert the offtake arrangement to an equity participation providing for the same volume of LNG. Under one of the HOAs, Chesapeake Energy Marketing LLC would supply to Lake Charles LNG volumes of natural gas sufficient to produce 1.0 million tonnes per year of LNG for a period of 15 years and, post liquefaction, Gunvor Singapore Pte Ltd would purchase LNG from Chesapeake at a price indexed to the Japan Korea Marker (JKM) for a period of 15 years. The other HOA is with a U.S. customer and relates to a tolling arrangement for 1.0 million tonnes per year for a 15-year term.

EQT Corporation announced on 25 July 2023 that the company had signed Heads of Agreement (HOA) for tolling at Lake Charles LNG for 1 million tonnes per year.

Centrica and Delfin Midstream Inc. announced on 11 July 2023 a long-term Sale and Purchase Agreement (SPA) for 1 million tonnes per year of LNG for 15-years on a Free on Board (FOB) basis at the Delfin Deepwater Port off the coast of Louisiana.

Exxon Mobil Corporation announced on 13 July 2023 that the company had entered into a definitive agreement to acquire Denbury Inc., a developer of carbon capture, utilization and storage (CCS) solutions and enhanced oil recovery.

Black & Veatch, in collaboration with Samsung Heavy Industries (SHI) of Korea, announced on 10 July 2023 that it had been awarded a front-end engineering design (FEED) contract for the Ksi Lisims LNG nearshore floating production facility in northwest Canada. Developed jointly by Western LNG, the Nisga'a Nation and Rockies LNG, the project will be an Indigenous-led infrastructure project. Ksi Lisims (pronounced "s'lisims") will be hosted by the Nisga'a Nation on their wholly-owned treaty land. The project will use a floating LNG

design. With commercial operations anticipated to begin in 2028, Ksi Lisims LNG will be designed to produce up to 12 million tonnes of LNG per year.

Canada's Ksi Lisims LNG announced on 13 July 2023 that the company had received its Process Order from the B.C. Environmental Assessment Office (BCEAO) and was clear to complete a full application for an environmental assessment certificate. The project expects to submit its application in 2023. The BCEAO commits to a 120-day timeframe for this phase of the process. Designed to be net-zero ready from day one of operations, the project aligns with the B.C. government's newly announced energy action framework. The project is designed to be the largest net-zero LNG export facility in the world.

Mexico Pacific Limited announced on 5 July 2023 that China's Zhejiang Energy International Limited and Mexico Pacific had signed a sales and purchase agreement for Zhejiang Energy to offtake 1 million tonnes per year of LNG on a free on-board (FOB) basis over 20 years from Mexico Pacific's Saguario Energía LNG export facility in Puerto Libertad, Sonora, Mexico.

Mexico Pacific announced on 18 July 2023 the consolidation of the strategic alliance between Mexico Pacific and CFE (Comisión Federal de Electricidad, Mexico) for the construction of the Saguario Energía LNG export project. Under the 20-year agreement, CFE will supply Mexico Pacific with natural gas delivered from the Permian Basin into Mexico Pacific's pipeline in the United States, and via CFE's pipelines in Mexico.

The Government of the State of Sonora and Mexico Pacific announced on 20 July 2023 they had signed a collaboration agreement supporting Mexico Pacific's Saguario Energia project in Puerto Libertad, Sonora, Mexico.

[Middle East]

Qatar's Minister of State for Energy Affairs, the President and CEO of QatarEnergy, said on 12 July 2023 "40% of all the new LNG that will come to the market by 2029, when all our projects are up and running, is going to be from QatarEnergy." "Qatar has the largest sequestration site in the MENA region. We are injecting more than 2 million tonnes per year of sequestered CO₂ and we are going to go to 11 million tonnes per year in a few years. We are using solar power to power some of our new LNG production. Qatar's LNG carbon intensity is probably the lowest in the world."

McDermott announced on 12 July 2023 that the company had secured a major contract from Qatargas Operating Company Limited to deliver engineering, procurement, construction, and installation (EPCI) for the North Field Production Sustainability (NFPS) Offshore Fuel Gas Pipeline and Subsea Cables Project, COMP1. The COMP1 project is part of the NFPS Offshore Compression Project involving the installation of new assets in Qatar's

North Field, including compression complexes at seven locations to sustain gas supply to the existing LNG production trains into the future.

QatarEnergy announced on 10 July 2023 a long-term condensate supply agreement with the Dubai-based ENOC Group. The 10-year sale agreement stipulates the supply of up to 120 million barrels of condensates from July 2023. The terms of the agreement allows parties to further increase the condensate volumes under the contract, as additional condensate volume is expected to be exported from Qatar once the North Field East (NFE) and North Field South (NFS) expansion projects come online.

The partners in Israel's Leviathan project had adopted a final investment decision (FID) on the project to lay a third subsea transmission pipeline from the production wells in the Leviathan field to the platform, allowing expansion of the maximum gas supply capacity from the Leviathan project to INGL's transmission system from 1.2 BCF per day to 1.4 BCF per day, from mid-2025, one of the partners, NewMed Energy announced on 2 July 2023.

[Africa]

TotalEnergies announced on 10 July 2023 that the company and Algeria's SONATRACH signed several agreements to strengthen the cooperation between the two companies in the production of natural gas in Algeria, the delivery of LNG to Europe, as well as the development of renewables in Algeria. SONATRACH and TotalEnergies have agreed to convert the production contracts for the Tin Fouyé Tabankort II (TFTII) and Tin Fouyé Tabankort Sud (TFT sud) fields in southern Algeria (Sonatrach 51%, TotalEnergies 49%) to the framework established by the new Algerian Petroleum Law enacted on 11 December 2019. The companies will pursue the investment program already launched to increase the gas production of TFTII and TFT South, which includes the upgrade of existing facilities and the drilling of additional wells. The combined production of the two fields is expected to exceed 100,000 boe per day by 2026, versus a level of around 60,000 boe per day in 2022. Under a second agreement, Sonatrach and TotalEnergies have extended for the year 2024 deliveries by SONATRACH of 2 million tonnes per year of LNG to TotalEnergies at the port of Fos-Cavaou, near Marseille, France. Under a third agreement, TotalEnergies and SONATRACH will cooperate to develop renewable energy projects in Algeria.

[Europe / Surrounding regions]

The European Commission announced on 18 July 2023 that the EU and Japan had reached a consensus to strengthen their energy cooperation by establishing an EU-Japan energy security dialogue on global LNG architecture. The dedicated dialogue will focus on three pillars: global security of supply, transparency of markets and reduction of methane

emissions in the LNG supply chain, reinforcing the EU's strategic energy partnership with Japan.

The European Commission Vice President said on 6 July 2023 that the first round of joint purchasing tendering through the AggregateEU saw an overall volume of 10.9 bcm of gas in demand from companies in the EU and its Energy Community - including Ukraine and Moldova - matched by suppliers. Negotiations on finalising contracts take place outside the Platform with several already been signed. In the second round launched in late June close to 16 bcm of demand has already been notified for delivery up to March 2025. International gas suppliers will be able to send their bids until 10 July.

The European Commission announced on 18 July 2023 that the second round of joint purchasing of gas under the EU Energy Platform, AggregateEU gathered demand for almost 16 bcm, over 4 bcm more compared to the first round. International suppliers responded with bids to supply a total volume of 15.19 bcm. An overall volume of 11.98 bcm of demand and supply have been matched. The volumes were also higher by 1 bcm than in the first round. LNG accounts for 5.5 bcm and the remaining 6.4 bcm covers pipeline gas.

Fluxys Belgium announced on 13 July 2023 that from October 2023, a single index, ZTP, would be used for the Belgian reference price. Fluxys said that the ZTP index was on average 14% lower than the Dutch TTF index in 2022. The move to a single index is the result of Fluxys Belgium's decision to merge the two existing gas trading services "ZTP notional" and "ZTP physical" on 1 October 2023 to reflect the changed dynamics on the wholesale market, and to simplify and increase liquidity. Price reporting agency ICIS will assist the market as it did with the merger of gas trading zones in France and Germany.

Spain's Enagás announced on 01 July 2023 that the LNG terminal of El Musel, in Gijón, had received its first ship. The Cool Racer with a capacity of 174,000 m³, will carry out a first unloading, necessary to complete the final technical tests before the commercial start-up of the terminal. 30 June was the deadline for shippers to show their interest in the binding phase of the process ending in July with the allocation of long-term logistics services. Operations are scheduled to start with the arrival at the terminal of the first commercial LNG carrier in the coming weeks, once the terminal's technical tests are completed. The logistics services offered for this infrastructure are LNG unloading, storage and loading operations. Under the regulated access regime, El Musel terminal will only offer minimal regasification service for the proper management of the terminal, as well as the truck loading service. The Gijón terminal could contribute up to 8 bcm (billion cubic metres) of LNG capacity per year. It will allow the berthing of vessels of between 50,000 and 266,000 m³, has two tanks of 150,000 m³ of LNG storage capacity, two truck loading bays with a capacity to load a maximum of 9 GWh/d and a maximum emission capacity of 800,000 Nm³/h.

Spain's Enagás announced on 11 July 2023 that Endesa was the winner of the recent capacity allocation process for logistics services at the El Musel LNG terminal in Gijón - long-term loading, unloading, and also storage services at the terminal. Enagás received in total 13 bids during the open season which ended on 30 June and assigned the plant's capacity to Endesa, which is majority owned by Italy's Enel.

bp and OMV announced on 28 July 2023 a long-term sale and purchase agreement (SPA) for up to 1 million tonnes of LNG per year for 10 years from 2026. bp will provide OMV with LNG from its portfolio, which will be received through the Gate LNG terminal in the Netherlands, where OMV holds regasification capacity, or other terminals in Europe.

Russia's Kommersant reported on 26 July 2023 that Russian gas production decreased by 9.8% year-on-year in the first half of the year to 330 Bcm. Gazprom's production decreased by 19% to 205 Bcm in the same period.

Russia's Novatek said on 12 July 2023 that that LNG volumes sold on international markets in the second quarter 2023 amounted to 3.24 bcm, representing a growth of 47.3%.

[South America]

The European Commission announced on 17 July 2023 that the EU and Argentina had signed a Memorandum of Understanding (MoU) on their energy cooperation, including renewable energy, hydrogen and methane emissions abatement.

[Global issues]

GIIGNL (International Group of Liquefied Natural Gas Importers) released on 13 July 2023 its 2023 Annual Report which summarized the key figures and trends of the LNG industry in 2022. Net LNG imports reached 389.2 million tonnes, representing a 4.5% growth. Spot & short-term LNG imports totaled 135 million tonnes, representing 35% of global LNG trade, compared to 36.6% in 2021.

The IGU (International Gas Union) released on 12 July 2023 its annual World LNG Report. In 2022, global liquefaction capacity grew by 4.3% to a total of 478.4 million tonnes per year, and 75% of the increase in 2022 came from the United States, giving it the largest operational liquefaction capacity worldwide (88.1 million tonnes per year).

Reference: Company announcements.

Contact: report@tky.ieej.or.jp